



milk matters

FOR STRONG BONES...

FOR LIFELONG HEALTH...



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Eunice Kennedy Shriver National Institute of
Child Health and Human Development



Dear Reader,

Milk Matters is for parents, teachers, and health care providers of girls and boys ages 11 to 15, a time of critical bone growth. However, the information also applies to younger and older kids because calcium is important throughout life for strong bones and a healthy body. Fewer than one in 10 girls and only one in four boys ages 9 to 13 are at or above their adequate intake of calcium.* But the good news is that you can help young people get enough calcium, and the benefits will last a lifetime. We hope this booklet will help you learn more about milk and calcium so you can help your children and teenagers grow into strong, healthy adults.

Sincerely yours,



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*USDA, ARS, 2005. What We Eat in America, NHANES 2001-2002.



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Growing tweens* and teens have growing needs for milk.

It takes calcium to build strong bones. And calcium is especially important during the tween and teen years, when bones are growing their fastest. Boys and girls in these age groups have calcium needs that they can't make up for later in life. Tweens and teens can get most of their daily calcium from 3 cups of low-fat or fat-free milk (900 mg of calcium), but they also need additional servings of calcium-rich foods to get the 1,300 mg of calcium necessary to build strong bones for life.

Low-fat or fat-free milk is a great source of calcium because it also has other important nutrients that are good for bones and teeth. One especially important nutrient is vitamin D, which helps the body absorb more calcium.

*Note: Tweens are kids ages 9 to 12.

Babies aren't the ones who need the most calcium.

Starting around age nine, young people need **almost twice as much calcium** as younger kids to help during the critical bone-building time between the ages of 11 and 15. Unfortunately, fewer than one in 10 girls and only one in four boys ages 9 to 13 are at or above their adequate intake of calcium.

Daily calcium needs by age:

Birth to 6 months	 210 mg
6 to 12 months	 270 mg
1 to 3 years	 500 mg
4 to 8 years	 800 mg
9 to 18 years	 1,300 mg
 = 300 mg	

Source: *Dietary Reference Intakes for Calcium*, National Academy of Sciences, 1997.



Weight-bearing physical activity also builds strong bones.

Bones are living tissue. Weight-bearing physical activity causes new bone tissue to form, which makes bones stronger. This kind of physical activity also makes muscles stronger. When muscles push and tug against bones during physical activity, bones and muscles become stronger.

Weight-bearing activities are those that keep you active and on your feet so that your legs carry your body weight. Activities such as **walking, running, dancing, climbing stairs**, and playing team sports like **basketball, soccer, and volleyball** help make bones stronger. Older teenagers can build even more bone strength through weight training, but they should check with a health care provider before starting any type of training.

Some activities, such as swimming, do not provide weight-bearing benefits. But they are good for cardiovascular fitness and overall good health.



Building strong bones in the tween and teen years makes a lifelong difference.

Having a calcium-rich diet when you're young makes a big difference in health, now and later. By getting the calcium they need now, tweens and teens will:

- **Strengthen bones now.** Our bodies continually remove and replace small amounts of calcium from our bones. If more calcium is removed than is replaced, bones will become weaker and have a greater chance of breaking. Some researchers suspect that the rise in forearm fractures in children is due to decreased bone mass, which may result because children are drinking less milk and more soda and are getting less physical activity.
- **Help prevent osteoporosis later in life.** Osteoporosis is a condition that makes bones weak so they break more easily. Although the effects of osteoporosis might not show up until adulthood, tweens and teens can help prevent it by building strong bones when they are young.



Calcium keeps mouths healthy too.

Calcium is important for a healthy mouth too. Even before they come in, baby teeth and adult teeth need calcium to develop fully. And after the teeth are in, calcium may also help protect them against decay. Calcium makes jawbones strong and healthy too!

Besides making sure your children get enough calcium, there are other things you can do to keep their teeth healthy:

- Make sure your children brush with a fluoride toothpaste. Fluoride protects teeth from decay and helps heal early decay.
- Ask your child's dental care or health care provider if there is fluoride in your town or city's drinking water. If there is not, ask about fluoride tablets or drops for your child.
- Ask your child's dental care provider about proper brushing and flossing techniques and other ways your tween or teen can make sure teeth stay healthy.

Here's where tweens and teens can get the calcium they need.

These foods help tweens and teens reach the **1,300 mg** of calcium they need every day.

Calcium-Rich Foods			
Food	Serving Size	Calories	Amount of Calcium
Plain yogurt, fat-free	1 cup	127	 452 mg
Orange juice with added calcium	8 fluid ounces (1 cup)	120	 350 mg
Fruit yogurt, low-fat	1 cup	232	 345 mg
Ricotta cheese, part skim	1/2 cup	170	 334 mg
American cheese, low-fat and fat-free	2 ounces (about 3 slices)	(Calories vary)	 312 mg
Milk (fat-free, low-fat, whole, or lactose-free)	8 fluid ounces (1 cup)	(Calories vary)	 300 mg
Soybeans, cooked	1 cup	175	 298 mg
Cheddar cheese, low-fat and fat-free	1/2 cup	(Calories vary)	 204 mg
Tofu, firm, with added calcium sulfate	1/2 cup	97	 204 mg
Soy beverage with added calcium	8 fluid ounces (1 cup)	100-130	 200-300 mg
Cheese pizza	1 slice	240	 200 mg
 = 100 mg			

There are lots of different calcium-rich foods to choose from, making it easy for tweens and teens to get the calcium they need every day. For example, just 1 cup of yogurt gives young people 25 percent of their daily calcium requirement. Low-fat and fat-free milk and milk products, such as low-fat or fat-free cheese and yogurt, are also excellent sources of calcium. Remember: tweens and teens can get most of their daily calcium from 3 cups of low-fat or fat-free milk (900 mg of calcium), but they also need additional servings of calcium-rich foods to get the 1,300 mg of calcium necessary.

Food labels can tell you how much calcium is in one serving of food. Look at the % Daily Value (% DV) next to the calcium number on the food label. For more information, go to <http://www.fda.gov/Food/LabelingNutrition/ConsumerInformation/ucm078889.htm>.

Here are some other foods young people can eat to boost their calcium intake.

Other Foods with Calcium			
Food	Serving Size	Calories	Amount of Calcium
Broccoli, raw	1 medium stalk	106	●● 180 mg
Broccoli, cooked	1 cup	52	● 94 mg
Bok choy, boiled	1 cup	20	●● 158 mg
Spinach, cooked from frozen	1/2 cup	27	●● 139 mg
Frozen yogurt, softserve vanilla	1/2 cup	114	●● 103 mg
Macaroni and cheese	1 cup	230	● 100 mg
Almonds	1 ounce (22 nuts)	169	● 75 mg
Tortilla, flour (7-8 inches)	1 tortilla	150	● 58 mg
Tortilla, corn (6 inches)	1 tortilla	53	● 42 mg
● = 100 mg			

Sources: USDA National Nutrient Database for Standard Reference, Release 17; Bowes and Church's Food Values of Portions Commonly Used, 2005. Some values have been rounded.

A close-up photograph of a clear glass filled with white milk. A white straw is inserted into the milk, and a thick layer of white foam is visible at the surface where the straw enters. The background is a solid, vibrant blue.

“But my child doesn’t like the taste of milk!”

Even if your tweens or teens don’t like the taste of plain milk, there are still plenty of ways to get calcium in the diet:

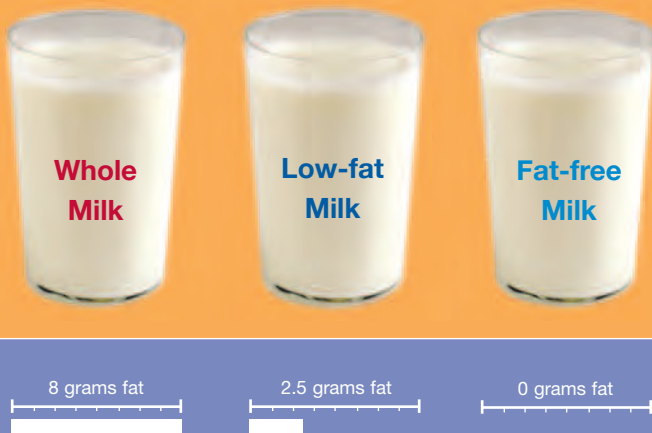
- Try a flavored low-fat or fat-free milk, such as chocolate, vanilla, or strawberry. Flavored milk has just as much calcium as plain.
- Serve foods that go with milk, such as fruit bars and fig bars.
- Drink milk or yogurt smoothies for breakfast or a snack. You can make these at home or try one of the ready-made versions now available at many grocery stores.
- Keep portable, calcium-rich foods on hand for snacks on the run, such as low-fat or fat-free string cheese or individual pudding cups with calcium added.
- In moderation, low-fat or fat-free ice cream and frozen yogurt are calcium-rich treats.
- Serve non-milk sources of calcium, such as calcium-fortified soy beverages or orange juice with added calcium.
- Try a spinach salad or have fresh or cooked broccoli.

Is one type of milk better than the other?

Today, tweens and teens have more milk choices than ever before. Most types of milk have approximately 300 mg of calcium per 8 fluid ounces (1 cup) – about 25 percent of the calcium that children and teenagers need every day. The best choices are low-fat or fat-free milk and milk products. Because these items contain little or no fat, it's easy to get enough calcium without adding extra fat to the diet.

Chocolate and other flavored milks have just as much calcium as plain milk, so it is fine for young people to drink these options if they prefer the taste. Remember to choose low-fat or fat-free.

Low-fat or fat-free milk is best for tweens and teens.



Children one to two years old should drink whole milk. After age two, low-fat or fat-free milk should become their regular drink.

Source: *Dietary Guidelines for Americans, 2005.*

What if milk causes digestive problems?

This happens in some children (and adults) who have lactose intolerance. These people may have trouble digesting lactose, the natural sugar found in milk and milk products. Symptoms of lactose intolerance include stomach pain, diarrhea, bloating, and gas.

The best way for these people to get the health benefits of milk is to choose lactose-free milk and milk products. There is also a variety of pills and drops, which are available without a prescription, that help people digest lactose.

In addition, most people who have problems digesting lactose can usually eat or drink:

- 8 fluid ounces (1 cup) of low-fat or fat-free milk taken with meals
- Low-fat or fat-free yogurt or cheese
- Low-fat or fat-free milk poured on hot or cold cereal

“Making it milk” can lead to lifelong healthy eating.



The tween and teen years are an important time for young people to learn smart eating habits that will last a lifetime. Making low-fat or fat-free milk and other calcium-rich foods a part of the diet now teaches tweens and teens to make healthy choices. And learning to make healthy food choices at home will carry over into school and adulthood.

People who have problems digesting lactose can also get some of their needed calcium from dark green vegetables, such as spinach, broccoli, and bok choy. Foods with calcium added are also an option. Be sure to check the ingredient list for calcium in:

- Tofu with added calcium sulfate
- Orange juice with added calcium
- Soy or rice beverages with added calcium
- Calcium-fortified breakfast cereals or breads

Calcium supplements also provide an alternative way of getting calcium.

Lactose intolerance is not common among children. However, if your children have problems with lactose, talk to their health care provider.



Put calcium on the menu at every meal.

One way to make it easier for tweens and teens to get enough calcium is to serve low-fat or fat-free milk and other calcium-rich foods throughout the day. Putting calcium-rich foods on your family’s menu at each meal is also a great way to make sure that everyone gets the calcium they need. When milk is the main beverage in the home, tweens and teens will choose it more often.

Ideas for calcium-rich meals and snacks

Breakfast	Lunch	Snack	Dinner
<ul style="list-style-type: none">• Pour low-fat or fat-free milk over your breakfast cereal.• Have a cup of low-fat or fat-free yogurt.• Drink a glass of orange juice with added calcium.• Add low-fat or fat-free milk instead of water to oatmeal and hot cereal.	<ul style="list-style-type: none">• Add low-fat or fat-free cheese to a sandwich.• Have a glass of low-fat or fat-free milk instead of soda.• Have a pizza or macaroni and cheese.• Add low-fat or fat-free milk instead of water to tomato soup.	<ul style="list-style-type: none">• Make a smoothie with fruit, ice, and low-fat or fat-free milk.• Try flavored low-fat or fat-free milk like chocolate or strawberry.• Have a low-fat or fat-free frozen yogurt.• Try some pudding made with low-fat or fat-free milk.• Dip fruits and vegetables into low-fat or fat-free yogurt.• Have some low-fat or fat-free string cheese.	<ul style="list-style-type: none">• Make a salad with dark green, leafy vegetables.• Serve broccoli or cooked, dry beans as a side dish.• Top salads, soups, and stews with low-fat or fat-free shredded cheese.• Toss tofu with added calcium to stir fry and other dishes.

Source: American Dietetic Association’s Complete Food and Nutrition Guide, 1996.



If you enjoy milk, chances are your children will, too.

Tweens and teens look up to their parents and want to be like them. Young people make many food choices by watching their parents, so if you want your children to enjoy the bone-building benefits of at least 3 cups of low-fat or fat-free milk and milk products every day, show it. Drink milk yourself, and offer calcium-rich meals and snacks. This is the best way to show tweens and teens that *Milk Matters!*

Teachers and other adults can spread the word about calcium, too.

As a teacher or activity leader, you play an important role in teaching 11- to 15-year-olds the importance of getting at least 3 cups of low-fat or fat-free milk a day, plus other calcium-rich foods. Here are some ways you can help spread the word:

- Hang a copy of the *Milk Matters* poster in your classroom. To order your free copy, call **1-800-370-2943** or visit <http://www.nichd.nih.gov/milk>.
- Include calcium in lesson plans on health or nutrition labels.
- Have students keep a log of their daily calcium intake. Use it to create a contest between students or classrooms to see who can consistently meet their daily calcium intake the most days in a row.
- Visit the *Milk Matters* Web site for additional resources <http://www.nichd.nih.gov/milk>.





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NIH Publication No. 05-4521

September 2005